

Superpave Plant Technologist Requalification Study Material

The following information is an overview of the materials that you should reference and examples of mathematical computations with which you should be familiar in regards to the 2005 Superpave Plant Technologist Requalification Exam. It should be noted that the following is not an “all-inclusive” list, participants are required to be familiar with all specifications, methods, guidelines, special notes, and practices required by the Department, not just the ones pertaining to this exam.

Referenced documents:

<u>KY Specifications</u>	<u>AASHTO Standards</u>	<u>Kentucky Methods (KM)</u>
· Division 300	· AASHTO M 323	· KM 64-426
· Division 400	· AASHTO R 30	· KM 64-434
· Division 800	· AASHTO PP35	· KM 64-435
	· AASHTO T166	· KM 64-442
	· AASHTO T209	· Other KM 64-400
	· AASHTO T312	Series pertaining to asphalt mixtures

Items of interest:

- Description of bid items for Hot-Mix Asphalt (HMA)
- Mixing temperature range for HMA with specific PG binders
- Gradation requirements (control points) for Superpave mixtures and Specialty mixtures
- Test data submittal to the Department
- Joint density requirements (Special Note)
- Lot Pay Adjustment Schedules

Review of questions requiring calculations:

The following types of questions (and subsequent answers) could be found on the 2005 Superpave Plant Technologist Requalification Exam. Please note: A silent, non-printing, non-programmable calculator can be used during the examination.

1. Calculate the air void content based on the following information:

Weight in air = 4879.1 grams
Weight in water = 2853.9 grams
SSD weight = 4886.0 grams
 $G_{mm} = 2.503$

- a. 4.1%
- b. 4.2%
- c. 4.0%
- d. 2.4%

2. Calculate the percent VMA based on the following information:

AC % = 4.8%
 $G_{sb} = 2.67$
 $G_{mb} = 2.401$

- a. 14.5%
- b. 14.0%
- c. 15.0%
- d. 14.4%

3. A core taken from the joint is determined to be 90.3 percent of solid density. What is the pay value for this individual core?

- a. 0.90
- b. 1.00
- c. 0.95
- d. 1.05

4. According to KM 64-435, when averaging the test portions of a maximum specific gravity (G_{mm}), what is the allowable variation between the two test portions before they are considered invalid, therefore requiring a third portion to be tested?

- no applicable tolerance
- a. 25.5 to 30.0 mm
 - b. plus or minus 15 mm
 - c. plus or minus 0.015

5. Determine the number of gyrations for Superpave specimens for a CL3 ASPH BASE 1.00D PG70-22 which contains 21% RAP in the mixture.
- a. 50
 - b. 75
 - c. 100
 - d. 125
6. The maximum mixture temperature, in degrees F, when measured in the truck for a mixture containing PG 76-22 is:
- a. 325
 - b. 295
 - c. 310
 - d. 350
7. The contractor's SPT performs acceptance testing on cores from the roadway and then reports the results to the Department.
- True_____ False_____
8. What is the upper control point on the No. 8 sieve for a scratch course placed with a 0.38-in. nominal maximum size mixture?
- a. 41
 - b. 58
 - c. 67
 - d. 49
9. All plants must be capable of recording a record of the production quantities even if the SPT is not using the printed ticket for asphalt content determination.
- True_____ False_____
10. The Kentucky Method that specifies the contractor's SPT's process control responsibilities is:
- a. KM 64-354
 - b. KM 64-421
 - c. KM 64-425
 - d. KM 64-426

Answer Guide to Superpave Plant Technologist Study Guide

1. a.
2. d.
3. b.
4. d..
5. c.
6. d
7. False
8. c.
9. True
10. d.